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09/921,583	08/06/2001	Satoshi Yatabe	110266	9671

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EXAMINER	
SHAPIRO, LEONID	
ART UNIT	PAPER NUMBER
2673	

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REJECTION

Please find below and/or attached an Office communication concerning this application or proceeding.

the date mailed, the date received by the Technology center and the date received by Applicant's representative is also attached.

In view of the foregoing, Applicant respectfully requests that the statutory period for response be reset to give Applicant the three months which was lost due to Patent Office error.

Respectfully submitted,

James A. Oliff
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JAO:PDM/ccs

Attachments:
Copy of Office Action
Mailing Envelope

Date: December 16, 2003

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Drawings

1. Figures 24-26, 31 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

On page 14, paragraph 0042 item 300 need to be change to item 200, as shown in Figs. 2-3.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4,6, 9,11,15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rader (US Patent No. 5867140) in view of APA (Admitted Prior Art) and further in view of Kudo et al. (US Patent No. 5,861,863) and further in view of Takahara et al. (US Patent No. 6,545,653 B1).

As to claims 1,6, Rader teaches a driving method and a driving circuit of a display device for driving pixels are arranged at each of intersections of a plurality of scanning lines and plurality of data lines (See Fig. 3, items 200, 311, 313, in description See Col. 1, Lines 14-21, Col. 2, Lines 46-52), comprising: setting pixel at each of intersections of particular ones of the plurality of scanning lines and particular ones of plurality of data lines to be in a display state while remaining pixels are set to be in a non-display state (See Fig. 3, items303, 305, in description See Col. 2, Lines 21-31); selecting particular scanning lines, one line for every horizontal scanning period with the selection voltage supplied to the selected scanning line, the polarity of the selection voltage being inverted with respect to an intermediate value between a lighting voltage and nonlighting voltage, supplied to the data line (See Fig. 4, items 414, 416, 424, 420, in description See Col. 5, Lines 19-27, Col. 7, Lines 8-19 and 40-49); supplying each of the particular data lines with a lighting voltage in accordance with a content to be displayed on a pixel at an intersection of the selected scanning line and the particular data line for period during which the selection voltage is supplied to the selected scanning line, within one horizontal scanning period for selecting one of the particular scanning lines (See Fig. 4, items 424, 444, 420, 311, in description See Col. 6, Lines 5-14).

Rader does not show one of two split halves of the one horizontal scanning period every two or more horizontal scanning periods, the particular data line being supplied with the lighting voltage and the non-lighting voltage for substantially equal periods within the one horizontal scanning period for the selected scanning line and supplying the data line other than the particular data lines with the non-lighting voltage for a period during which the particular scanning lines are consecutively selected in response to the polarity of the selection voltage

supplied to the selected scanning lines, wherein the polarity of the non-lighting voltage is inverted in synchronization with the period of polarity inversion of the selection voltage

APA teaches in conventional four-value driving (1/2H selected, 1H inverted) driving method one of two split halves of the one horizontal scanning period every and the particular data line being supplied with the lighting voltage and the non-lighting voltage for substantially equal periods within the one horizontal scanning period for the selected scanning line (See Fig. 26, items Yj,Yj+1, in description See page 32, paragraphs 0107-0109), supplying the data line other than the particular data lines with the non-lighting voltage for a period during which the particular scanning lines are consecutively selected in response to the polarity of the selection voltage supplied to the selected scanning lines, wherein the polarity of the non-lighting voltage is inverted in synchronization with the period of polarity inversion of the selection voltage (See Fig. 26, items Yj,Yj+1, in description See page 32, paragraphs 0107-0109).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate one of two split halves of the one horizontal scanning period and the particular data line being supplied with the lighting voltage and the non-lighting voltage for substantially equal periods within the one horizontal scanning period for the selected scanning line as conventional method in the Rader method and a driving circuit in order to improve the display for cellular radiotelephone, pager and so on (See Col. 1, Lines 62-68 in the Rader reference).

Rader and APA do not show supplying each of scanning lines other than particular scanning lines with a non-selection voltage which is inverted in polarity with respect to the intermediate value every one or more vertical scanning periods.

Kudo et al. teaches to supply each of scanning lines other than particular scanning lines with a non-selection voltage which is inverted in polarity with respect to the intermediate value every one or more vertical scanning periods (See Fig. 13, items 1301-1303, in description See Col. 25, Lines 42-54).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate supply each of scanning lines other than particular scanning lines with a non-selection voltage which is inverted in polarity with respect to the intermediate value every one or more vertical scanning periods as shown by Kudo et al. in the Rader and APA method and a driving circuit in order to enable to prevent occurrences of possible image quality degradation phenomena (See Col. 5, Lines 1-2 in Kubo et al. reference).

Rader, APA and Kubo et al. do not show the polarity of the selection voltage being inverted with respect to an intermediate value between a lighting voltage and non-lighting voltage, supplied to the data line, every two or more horizontal scanning periods.

Takahara et al. teaches polarity of the selection voltage being inverted every two horizontal scanning periods (See Figs. 12-13, item 101b, in description See Col. 20, Lines 43-45).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate polarity of the selection voltage being inverted every two horizontal scanning periods as shown by Takahara et al. in the Kudo et al., Rader and APA method and a driving circuit for particular scanning lines in order in order to improve the display for cellular radiotelephone, pager and so on (See Col. 1, Lines 62-68 in the Rader reference).

As to claim 11, Rader teaches a display device for driving pixels are arranged at each of intersections of a plurality of scanning lines and plurality of data lines (See Fig. 3, items 200, 311, 313, in description See Col. 1, Lines 14-21, Col. 2, Lines 46-52), comprising: setting pixel at each of intersections of particular ones of the plurality of scanning lines and particular ones of plurality of data lines to be in a display state while remaining pixels are set to be in a non-display state (See Fig. 3, items303, 305, in description See Col. 2, Lines 21-31); selecting particular scanning lines, one line for every horizontal scanning period with the selection voltage supplied to the selected scanning line, the polarity of the selection voltage being inverted with respect to an intermediate value between a lighting voltage and nonlighting voltage, supplied to the data line (See Fig. 4, items 414, 416, 424, 420, in description See Col. 5, Lines 19-27, Col. 7, Lines 8-19 and 40-49); supplying each of the particular data lines with a lighting voltage in accordance with a content to be displayed on a pixel at an intersection of the selected scanning line and the particular data line for period during which the selection voltage is supplied to the selected scanning line, within one horizontal scanning period for selecting one of the particular scanning lines (See Fig. 4, items 424, 444, 420, 311, in description See Col. 6, Lines 5-14).

Rader does not show one of two split halves of the one horizontal scanning period every two or more horizontal scanning periods, the particular data line being supplied with the lighting voltage and the non-lighting voltage for substantially equal periods within the one horizontal scanning period for the selected scanning line and supplying the data line other than the particular data lines with the non-lighting voltage for a period during which the particular scanning lines are consecutively selected in response to the polarity of the selection voltage

supplied to the selected scanning lines, wherein the polarity of the non-lighting voltage is inverted in synchronization with the period of polarity inversion of the selection voltage

APA teaches in conventional four-value driving (1/2H selected, 1H inverted) driving method one of two split halves of the one horizontal scanning period every and the particular data line being supplied with the lighting voltage and the non-lighting voltage for substantially equal periods within the one horizontal scanning period for the selected scanning line (See Fig. 26, items Yj,Yj+1, in description See page 32, paragraphs 0107-0109), supplying the data line other than the particular data lines with the non-lighting voltage for a period during which the particular scanning lines are consecutively selected in response to the polarity of the selection voltage supplied to the selected scanning lines, wherein the polarity of the non-lighting voltage is inverted in synchronization with the period of polarity inversion of the selection voltage (See Fig. 26, items Yj,Yj+1, in description See page 32, paragraphs 0107-0109).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate one of two split halves of the one horizontal scanning period and the particular data line being supplied with the lighting voltage and the non-lighting voltage for substantially equal periods within the one horizontal scanning period for the selected scanning line as conventional method in the Rader display device in order to improve the display for cellular radiotelephone, pager and so on (See Col. 1, Lines 62-68 in the Rader reference).

Rader and APA do not show supplying each of scanning lines other than particular scanning lines with a non-selection voltage which is inverted in polarity with respect to the intermediate value every one or more vertical scanning periods.

Kudo et al. teaches to supply each of scanning lines other than particular scanning lines with a non-selection voltage which is inverted in polarity with respect to the intermediate value every one or more vertical scanning periods (See Fig. 13, items 1301-1303, in description See Col. 25, Lines 42-54).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate supply each of scanning lines other than particular scanning lines with a non-selection voltage which is inverted in polarity with respect to the intermediate value every one or more vertical scanning periods as shown by Kudo et al. in the Rader and APA display device in order to enable to prevent occurrences of possible image quality degradation phenomena (See Col. 5, Lines 1-2 in Kubo et al. reference).

Rader, APA and Kubo et al. do not show the polarity of the selection voltage being inverted with respect to an intermediate value between a lighting voltage and non-lighting voltage, supplied to the data line, every two or more horizontal scanning periods.

Takahara et al. teaches polarity of the selection voltage being inverted every two horizontal scanning periods (See Figs. 12-13, item 101b, in description See Col. 20, Lines 43-45).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate polarity of the selection voltage being inverted every two horizontal scanning periods as shown by Takahara et al. in the Kudo et al., Rader and APA display device for particular scanning lines in order in order to improve the display for cellular radiotelephone, pager and so on (See Col. 1, Lines 62-68 in the Rader reference).

As to claims 4,9, Rader teaches for a duration of time during which the scanning lines other the particular scanning lines are consecutively selected, the data lines are supplied with a signal having a positive voltage portion and a negative voltage portion with respect to the intermediate value, the signal alternating between the positive voltage portion and the negative portion with respect to the intermediate value every one or more horizontal scanning periods (See Fig. 4, items 420, 305, 424, 200, in Description See Col. 7, Lines 40-49).

As to claim 15, Rader teaches electronic equipment comprising a display device (See FIG. 2, item100, 200, in description See from Col. 1, Line 59 to Col. 2, Line 9).

4. Claims 5,10, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rader , APA, Kudo et al. and Takahara et al. as aforementioned in claims 4,9 in view of Yokota et al. (US Patent No. 6,181,313 B1).

Rader, APA, Kudo et al. and Takahara et al. do not show the polarity inversion period of the signal having the positive and negative voltage portion is a fraction of the horizontal scanning period determined by dividing the total number of scanning lines other than particular scanning lines by an integer number equal two or more.

Yokota et al. teaches a drive duty selection register (See Fig. 1, items 3, 34, in description See Col. 8, lines 43-53 and Col. 9, Lines 64-68). It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate duty cycle control as shown Yokota et al. in the Rader, APA, Kudo et al. and Takahara et al. apparatus and method to control polarity of the inversion period for the scanning lines other than the particular scanning lines in

order to improve the display for cellular radiotelephone, pager and so on (See Col. 1, Lines 62-68 in the Rader reference).

5. Claims 12-14 rejected under 35 U.S.C. 103(a) as being unpatentable over Rader, APA, Kudo et al. and Takahara et al. as aforementioned in claim 11 in view of Shimada (US Patent No. 6, 512, 506 B1).

As to claim 12, Rader, APA, Kudo et al. and Takahara et al. do not show a switching element and capacitive element containing an electro-optical material, wherein when one scanning line is supplied with the selection voltage, the switching element of the pixel assigned to the selected scanning line becomes conductive and writing is performed on a capacitive element corresponding to the switching element in response to a lighting voltage supplied to the corresponding data line.

Shimada teaches a switching element and capacitive element containing an electro-optical material, wherein when one scanning line is supplied with the selection voltage, the switching element of the pixel assigned to the selected scanning line becomes conductive and writing is performed on a capacitive element corresponding to the switching element in response to a lighting voltage supplied to the corresponding data line (See Fig. 2, items 2a, 2b,Ym, Xn, in description See Col. 9, lines 26-41). It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate switching and a capacitive element as shown by Shimada in the Rader , APA, Kudo et al. and Takahara et al. apparatus and method in order to improve power consumption (See Col. 8, Lines 35-39 in the Shimada reference).

As to claims 12-13, Shimada teaches the switching element is a two-terminal switching element (MIM or conductor-insulator-conductor) and the capacitive element connected in series between scanning line and data line (See Fig. 2, items 2a, 2b,Ym, Xn, in description See Col. 9, lines 26-41).

Allowable Subject Matter

6. Claims 2-3 and 7-8 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is an examiner's statement of reasons for allowance:

Relative to claims 2-3 and 7-8 the major difference between the teaching of the prior art of record APA, (US Patent No. 5,867,140 to Rader, US Patent No. 5,861,863 to Kudo et al. and US Patent No. 6,545,653 B1 to Takahara et al.) and the instant invention is that the said prior art **does not teach** the selected scanning line is supplied with the selection voltage for a second half of the horizontal scanning period and when a subsequent scanning line is selected, the selected scanning line is supplied with the selection voltage for a first half of one horizontal scanning period.

Response to Amendment

8. Applicant's arguments filed on 08-05-03 with respect to claims 1, 4-6, 9-15 have been considered but are moot in view of the new ground(s) of rejection.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

ls

BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Notice of References Cited

Application/Control No.	Applicant(s)/Patent Under Reexamination	
09/921,583	YATABE, SATOSHI	
Examiner	Art Unit	Page 1 of 1
Leonid Shapiro	2673	

U.S. PATENT DOCUMENTS

		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,861,863	01-1999	Kudo et al.	345/100
	B	US-6,545,653	04-2003	Takahara et al.	345/87
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
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